Unit 3

Atlantic Anadromous Fisheries

Introduction

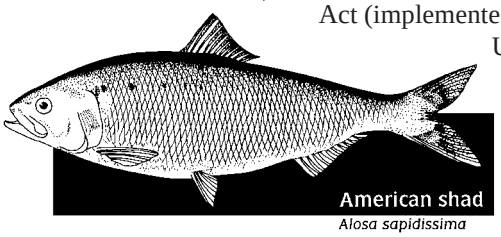
The anadromous species of the Atlantic seaboard are a diverse group, including river herrings (alewife, blueback herring, hickory shad), American shad, striped bass, Atlantic salmon, sturgeons (Atlantic and shortnosed), and rainbow smelt. Regulation of these stocks is likewise diverse: ASMFC has implemented FMPs for shad and river herring, and Atlantic sturgeon, while shortnosed sturgeon is managed under a recovery plan prepared under the Endangered Species Act. Atlantic salmon are regulated by a New England Council FMP, and under the auspices of the North Atlantic Salmon Conservation Organization (NASCO). Striped bass are regulated under an ASMFC FMP and special Congressional authority under the Striped Bass Conservation Act (implemented by NOAA Fisheries and USFWS).

Table 3-1. Atlantic Anadromous Fish Resources

Productivity in metric tons and status of fisheries resources

Species	Recent Average Yield (RAY)[1]	Current Potential Yield (CPY)	Long-Term Potential Yield (LTPY)	Fishery Utilization Level	Stock Level Relative to LTPY
Striped bass[2]	3,600	Unknown	Unknown	Full	Above
American shad	700	Unknown	Unknown	Over	Below
Alewife/blueback	300	Unknown	Unknown	Over	Below
Sturgons	33	Unknown	Unknown	Over	Below
Atlantic salmon	3	Unknown	Unknown	Full	Below
Total	4,836	4,836	4,836		

[1] 1992-94 average (including foreign and recreational landings). Landings for 1994 are incomplete for some areas resulting in underestimated RAYs for some species; for alewife/blueback and American shad, higher assumed 1994 landings were used in calculating RAY.
[2] Includes significant recreational landings.



American shad
Alosa sapidissima

Recent average landings of Atlantic anadromous species (Table 3-1; Figs. 3-1 and 3-2) are only 4,800 t, far below historical levels. Several of the species are of major recreational importance to the region (including American shad, striped bass, and Atlantic salmon). The recreational portion of the recent average landings is about 2,800 t, virtually all of which is of striped bass.

Landings of Atlantic anadromous species have declined greatly in recent years. River herring catches peaked in the 1960s at about 27,000 t coastwide, but have since declined to less than 2,000 t annually. Likewise, commercial landings of American shad had a recent peak of 3,000 t in 1970, but are now averaging only about 700 t/year. Striped bass commercial landings were over 6,000 t in 1973, but decreased to less than 1,000 t by 1985. Following several years of severe management restrictions, regulations have maintained commercial striped bass landings at about 800 t/year. Catches of U.S. origin Atlantic salmon, taken primarily in foreign commercial fisheries, were in excess of 10,000 fish/year during the 1980s. Currently, domestic and foreign fisheries on Atlantic salmon are, for the most part, closed by regulation or private quota purchase agreement.

Species and Status

Unlike most of the offshore resources of the Northeast, Atlantic anadromous stocks have heavily been influenced by non-fishing human activities in the coastal zone. Damming of rivers preventing access to former spawning grounds was a major factor in the decline of Atlantic salmon, sturgeons, river herrings, and shad. Environmental contamination is implicated in the decline of several species. Today, not only are these species threatened by coastal pollution and development, but interception fisheries (sometimes far from the spawning grounds) are considered problematic to the recovery of some species.

Atlantic Salmon

Atlantic salmon historically spawned in river systems throughout New England. As a consequence of industrial and agricultural development, most runs native to New England have been extirpated. Today, the only self-supporting runs in the United States are in Maine. Restoration efforts, in the form of stocking and fish passage construction, are

underway in the Connecticut, Pawcatuck, Merrimack, and Penobscot rivers. In U.S. rivers, juvenile salmon are resident in freshwater streams for 2 or 3 years before migrating to the sea. While at sea, they generally undergo extensive migrations to the waters off Canada and Greenland.

The abundance of Atlantic salmon stocks in Maine rivers is represented by estimates of catch and run size (Fig. 3-1). The abundance of U.S. stocks, like most stocks in North America, has declined during the past decade. Home water fisheries (those in U.S. waters) are limited to angling in Maine. The number of salmon kept by anglers has exceeded 1,000 fish/year. However, current low salmon stock abundance has prompted a complete ban on the retention of fish in the recreational fishery. Tagging experiments have demonstrated that distant-water fisheries commercial gillnet fisheries off Canada and Greenland) have exploited U.S. stocks at approximately 50%. These commercial oceanic fisheries are regulated under the auspices of NASCO. Canadian interception fisheries have been regulated by time-area restrictions and quotas. Beginning in 1992, the fishery in Newfoundland was closed for a 5-year period. The Greenland fishery is quota controlled, but in recent years, the quota has been purchased by private agreement.

Striped Bass

Four primary stocks of striped bass occur along the Atlantic coast: Hudson River, Delaware Bay, Chesapeake Bay, and Roanoke River (NC). Striped bass stocks historically have supported important commercial and recreational fisheries, with recreational harvests often equaling or exceeding commercial landings (Fig. 3-2). Commercial fisheries are prosecuted with a variety of gears including haul seines, trawls, pound and gillnets, and hook-and-line. Commercial landings peaked in 1973 and then began a precipitous decline. The declining landings coupled with consistently poor recruitment indices in the Chesapeake Bay provided the impetus for highly restrictive management actions taken by ASMFC in the mid-1980s. Additionally, Congress passed the Striped Bass Conservation Act, which empowered the Departments of Commerce and Interior to impose a moratorium on striped bass fishing in any state which ASMFC found not to be in compliance with its FMP.

The fisheries were monitored closely and under severe management restrictions. However, a high recruitment index in 1989 in the Chesapeake Bay (Fig. 3-2) triggered a slight relaxation of management restrictions and allowed increased fishing pressure on migratory Atlantic striped bass stocks the following year. Recruitment has continued to improve and the growth of the population has reached a level of abundance equivalent to the mid-1970s, prior to the decline. As a result of the improved conditions, ASMFC has declared Atlantic striped bass fully restored, allowing a further relaxation of management regulations in the commercial and recreational fisheries. Modeling studies indicate that the resource should continue to increase if fishing annually removes 27% or less of the legal-sized fish.

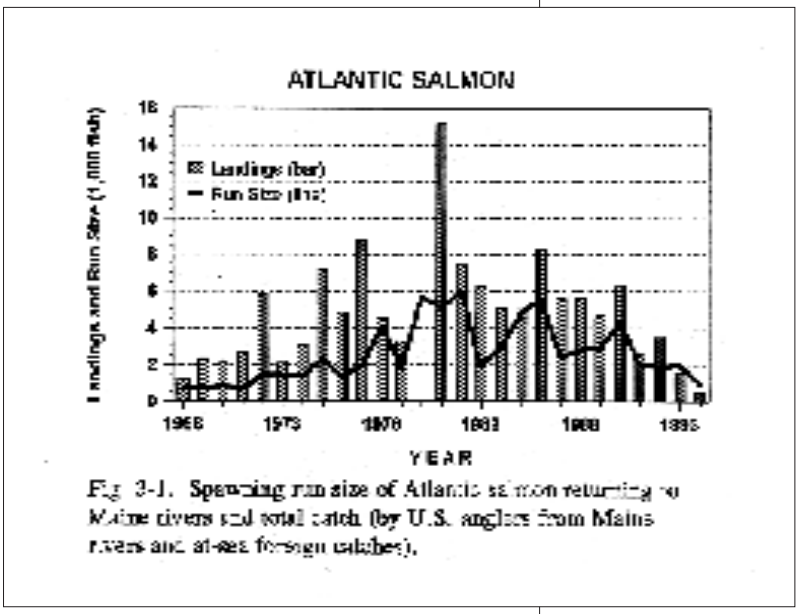


Fig. 3-1. Spawning run size of Atlantic salmon returning to Maine rivers and total catch (by U.S. anglers from Maine rivers and at-sea foreign catches).

Atlantic Salmon Landings
(Number of Fish)

1993	1,500,000
1994	500,000

Issues

Transboundary Stocks and Jurisdiction

The interception of U.S.-origin salmon in commercial fisheries off Canada and West Greenland represent a major impediment to the restoration of runs and homewater fisheries. The catch of U.S.-origin fish in interception fisheries has been about 10 times the homewater recreational catch. Beginning in 1992, the largest portion of the Canadian fishery, that around Newfoundland, was closed for a moratorium

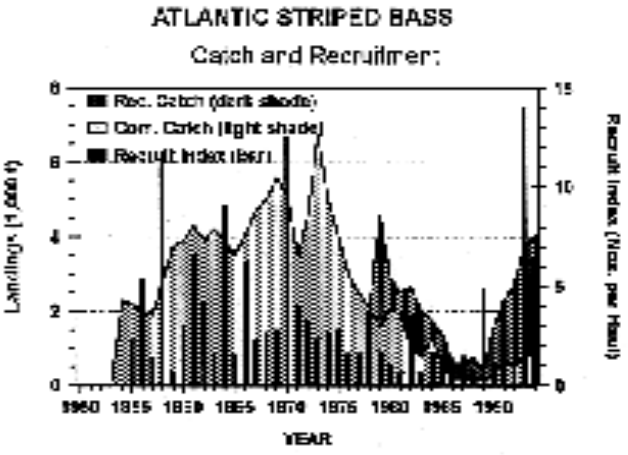


Fig. 3-2. Striped bass catch and recruitment index (Maryland seine index of young fish in Chesapeake Bay.

Atlantic Striped Bass Landings (t)

	Com.	Rec.
1993	800	3,000
1994	900	3,100

period of five years. Likewise, the Greenland fishery quota, which was set to meet spawning escapements to North American rivers, was purchased by a private conservation agreement and removed from the fishery.

Endangered Species Concerns

Anadromous Atlantic salmon populations throughout their range in the U.S. were petitioned for listing under the Endangered Species Act. NOAA Fisheries and USFWS, working in partnership, formed a biological review team to evaluate the status of these populations. The two agencies determined that available biological evidence indicated that the population structure described in the petition did not meet the definition of species under the Act. The team concluded that native population segments south of the Kennebec River were extirpated. However, the agencies have published a proposed rule to list a population complex in 7 Maine rivers containing remnant native populations as threatened. The final decision on this proposed rule will be made in 1996. The salmon populations in 4 additional rivers warrant further study and the agencies are actively investigating their status.

Management Controls

An issue of particular concern for striped bass is the potential impact of discard mortality. Recreational fishing effort for striped bass currently far exceeds commercial effort, and over 90% of the recreational catch was released alive during the early-1990s. Even with high survival rates of hooked and released striped bass, the large number of fish subjected to hooking mortality may compromise the conservation benefit of high minimum sizes. Another concern as the striped bass population expands is the increased likelihood of striped bass bycatch in non-directed commercial fisheries. There is a desire by all interests not to negate the progress made in rebuilding the severely depleted spawning stocks in Chesapeake Bay. ❑